

CITY OF MIAMI BEACH
Office of the City Manager
Letter to Commission No. 038-2004



To: Mayor David Dermer and
Members of the City Commission

Date: February 6, 2004

From: Jorge M. Gonzalez
City Manager

A handwritten signature in black ink, appearing to read "Jorge".

**Subject: MAYORS BLUE RIBBON PANEL ON THE STRUCTURAL INTEGRITY OF
HISTORIC BUILDINGS**

Please find attached a rough draft of the proposed recommendations of the Mayor's Blue Ribbon Panel on the Structural Integrity of Historic Buildings.

The Panel has recommended creating a local ordinance based on Miami-Dade County 40 year Building Recertification Ordinance and has proposed several additions to the ordinance. The changes are underlined in the attached rough draft for your review and comments.

Staff will provide their recommendations at the March 17, 2004 Commission Meeting.

JMG:CMC:JGL

cc: Phillip Azan, Building Official

ROUGH DRAFT

RECERTIFICATION OF OLDER BUILDINGS

ORDINANCE NO. _____

AN ORDINANCE OF THE MAYOR AND CITY COMMISSIONER OF THE CITY OF MIAMI BEACH, FLORIDA FOR THE RECERTIFICATION OF OLDER BUILDINGS WHICH WILL PERTAIN TO BUILDING THAT ARE IN EXISTENCE FOR FORTY (40) YEARS OR LONGER AND FOR SUBSEQUENT RECERTIFICATION IN FIVE (5) YEAR INTERVALS; PROVIDING FOR REPEALER, SEVERABILITY, CODIFICATION, AND AN EFFECTIVE DATE.

WHEREAS, the City of Miami Beach ~~is seeking~~ seeks to create an ordinance for the "Recertification of Older Buildings" ~~which~~ that will pertain to buildings ~~that~~ which are in existence for forty (40) years or longer and for subsequent recertification in five (5) year intervals.

WHEREAS, the City of Miami Beach ~~is seeking~~ seeks to ~~create this ordinance to~~ retain and preserve ~~the~~ its historical and architectural heritage; and

WHEREAS, the City of Miami Beach ~~is seeking~~ seeks to ~~create this ordinance to~~ ensure the protection of historic and architecturally significant structures from deterioration and neglect; and

WHEREAS, the City of Miami Beach ~~is seeking~~ seeks to ~~create this ordinance to~~ monitor buildings to determine which buildings are ~~becoming~~ structurally unsafe before they become a threat to the life, safety and welfare of the public so that repairs may begin before demolition becomes necessary; and

WHEREAS, the City of Miami Beach ~~is seeking~~ seeks to ~~create this ordinance to~~ encourage ~~promote a positive relationship with the~~ property owners ~~who~~ to take reasonable and responsible steps to preserve their property; and ~~to insure that they will not be penalized for their good faith efforts to replicate and restore structures.~~

WHEREAS, the City of Miami Beach has created procedures, requirements and minimum structural and electrical inspection procedural guidelines, ~~that are~~ defined below, which are necessary to accomplish the above objectives.

NOW, THEREFORE, BE IT DULY ORDAINED BY THE MAYOR AND CITY COMMISSION OF THE CITY OF MIAMI BEACH, FLORIDA

SECTION 1. RECERTIFICATION OF OLDER BUILDINGS:

The requirements contained in the Florida Building Code, covering the maintenance of buildings, shall apply to all buildings and/or structures now existing or hereafter erected. All buildings and/or structures and all parts thereof shall be maintained in a safe condition, and all devices or safeguards that are required by the Florida Building Code shall be maintained in good working order. Electrical wiring, apparatus and equipment, and installations for light heat or power and low voltage systems as are required and/or regulated by the Florida Building Code, now existing or hereinafter installed, shall be maintained in a safe condition and all devices and safeguard maintained in good working order.

Recertification of buildings and components:

For the purpose of this Subsection, recertification shall be construed to mean the requirement for specific inspection of existing buildings and structures and furnishing the Building Official with a written report of such inspection as prescribed herein.

Inspection procedures shall conform, in general, with the minimum inspection procedural guidelines as issued by the Board of Rules and Appeals.

Such inspection shall be for the purpose of determining the general structural condition of the building or structure to the extent reasonably possible of any part, material or assembly of a building or structure which affects the safety of such building or structure and/or which supports any dead or designed live load, and the general condition of its electrical systems pursuant to the Building Code.

All buildings, except single-family residences, duplexes and minor structures as defined below, shall be recertified in the manner described below where such buildings or structures have been in existence for forty (40) years or longer, as determined by the Building Official, who shall at such time issue a Notice of Required Inspection to the building owner.

Subsequent recertification shall be required at five (5) year intervals.

In the event a building is determined to be structurally and electrically safe under the conditions set forth herein, and such building or structure is less than forty (40) years of age, recertification shall not be required for a minimum of five (5) years from that time, or age forty (40), whichever is the longer period of time.

Minor buildings or structures shall, for the purpose of this subsection, be buildings or structures in any occupancy group having an occupant load of ten (10) or less, as determined by table 1003.1 (FBC) Minimum Occupant Load of the Florida Building Code and having a gross area of 2,000 sq. ft. or less.

With very little qualification, such as rather rare chemically reactive conditions, deterioration of building materials can only occur in the presence of moisture, largely to metals and their natural tendency to return to the oxide state in the corrosive process.

In this marine climate, highly aggressive conditions exist year round. For most of the year, outside relative humidity may frequently be about 90 or 95%, while within air-conditioned buildings, relative humidity will normally be about 35 to 60%. Under these conditions moisture vapor pressures ranging from about 1/3 to 1/2 pounds per square inch will exist much of the time.

Moisture vapor will migrate to lower pressure areas. Common building materials such as stucco, masonry and even concrete, are permeable even with these slight pressures. Since most of our local construction does not use vapor barriers, condensation will take place within the enclosed walls of the building. As a result, deterioration is most likely adjacent to exterior walls, or wherever else moisture or direct leakage has been permitted to penetrate the building shell.

Structural deterioration will always require repair. The type of repair, however, will depend on the importance of the member in the structural system and degree of deterioration. Cosmetic type repairs may suffice in certain non-sensitive members such as tie beams and columns, provided that the remaining sound material is sufficient for the required function. For members carrying assigned gravity or other loads, cosmetic type repairs will only be permitted if it can be demonstrated by rational analysis that the remaining material, if protected from further deterioration can still perform its assigned function at acceptable stress levels. Failing that, adequate repairs or reinforcement will be considered mandatory.

Written Reports shall be required attesting to each required inspection. Each such report shall note the location of the structure, description of type of construction, and general magnitude of the structure, the existence of drawings and location thereof, history of the structure to the extent reasonably known, and description of the type and manner of the inspection, noting problem areas and recommending repairs, if required to maintain structural integrity.

EVALUATION: Each report shall include this document, General Conditions and each paragraph is to be initialed by the Professional Engineer performing the inspection acknowledging the guidelines to which the inspection is to be preformed In addition, each report shall include the following:

A statement to the effect that the building is structurally safe, unsafe, safe with qualifications, or has been deemed safe by restrictive interpretation of such statements. It is suggested that each report also include the following information indicating the actual scope of the report and limits of liability. This paragraph may be used:

" As a routine matter, in order to avoid possible misunderstanding, nothing in this report should be construed directly or indirectly as a guarantee for any portion of the structure. To the best of my knowledge and ability, this report represents an accurate appraisal of the present condition of the building based upon careful evaluation of observed conditions, to the extent reasonably possible."

In addition to the report, the following photographs must be submitted with the report to be approved by the City of Miami Beach Building Department. The photographs cannot be digitally reproduced.

- Exterior elevations of the entire structure, when possible.
- The roof.
- The crawl space under building, especially under bathrooms.
- Interstitial space between the ceiling of the top floor and the roof.

Additional photographs may be submitted at the discretion of the engineer.

It is the responsibility of the Professional Engineer conducting the inspection to notify the owner, in writing, of any deficiencies observed.

It is the responsibility of the owner to have the deficiencies corrected and prior to completion, notify the engineer that the deficiencies are corrected.

If after 180 days from the time of the engineer's notification to the owner the engineer is not notified that the deficiencies are corrected the engineer must notify the building department of the deficiencies.

These deficiencies, at the discretion of the engineer, must be classified as "potentially life threatening", such as the observed deficiencies if not corrected may lead to a structural collapse or if electrical, there is a potential for a serious electrical injury.

All corrective work, that is required to be completed, must be completed with the appropriate permits being obtained and all mandatory inspections performed as required by the building code.

FOUNDATION

If all of the supporting subterranean materials were completely uniform beneath a structure, with no significant variations in grain size, density, moisture content or other mechanical properties; and if dead load pressures were completely uniform, settlements would probably be uniform and of little practical consequence. In the real world, however, neither is likely. Significant deviations from either of these two ideals are likely to result in unequal vertical movements.

Monolithic masonry, generally incapable of accepting such movements will crack. Such cracks are most likely to occur at corners, and large openings. Since, in most cases, differential shears are involved, cracks will typically be diagonal.

Small movements, in themselves, are most likely to be structurally important only if long term leakage through fine cracks may have resulted in deterioration. In the event of large movements, continuous structural elements such as floor and roof systems must be evaluated for possible fracture or loss of bearing.

Pile foundations are, in general, less likely to exhibit such difficulties. Where such does occur, special investigation will be required.

ROOFING SYSTEMS

Sloping roofs, usually having clay or cement tiles, are of concern in the event that the covered membrane may have deteriorated, or that the tiles may have become loose. Large deflections, if merely resulting from deteriorated rafters or joists will be of greater importance. Valley Flashing, and Base Flashing at roof penetration will also be matters of concern.

Flat roofs with built up membrane roofs will be similarly critical with respect to deflection considerations. Additionally, since they will generally be approaching expected life limits at the age when building recertification is required, careful examination is important. Blisters, wrinkling, alligatoring, and loss of gravel are usually signs of difficulty. Punctures or loss of adhesion of base flashing, coupled with loose counterflashing will also signify possible problems. Wind blown gravel, if excessive, and the possibility of other debris, may result in pounding, which if permitted, may become critical.

MASONRY BEARING WALLS

Random cracking, or if discernible, definitive patterns of cracking, will of course, be of interest. Bulging, sagging, or other signs of misalignment may also indicate related problems in other structural elements. Masonry walls where commonly constructed of either concrete masonry units or scored clay tile, may have been constructed with either reinforced concrete columns tie beams, or lintels.

Steel bar joists are, of course, sensitive to corrosion. Most critical locations will be web member welds, especially near supports, where shear stresses are high possible failure may be sudden, and without warning.

Cold formed steel joists, usually of relatively light gage steel, are likely to be critically sensitive to corrosion, and are highly dependent upon at least normal lateral support to carry designed loads. Bridging and the floor or roof system itself, if in good condition, will serve the purpose.

Wood joists and rafters are most often in difficult conditions from "dry rot", or the presence of termites. The former (a misnomer) is most often prevalent in the presence of sustained moisture or lack of adequate ventilation. A member may usually be deemed in acceptable condition if a sharp pointed tool will penetrate no more than about one eighth of an inch under moderate hand pressure. Sagging floors will most often indicate problem areas. Gypsum roof decks will usually perform satisfactorily except in the presence of moisture. Disintegration of the material and the foam-board may result from sustained leakage. Anchorage of the supporting bulb tees against uplift may also be of importance, with, significant deterioration. Floor and roof systems of cast-in-place concrete with self centering reinforcing, such as paper backed mesh and rib-lath, may be critical with respect to corrosion of the unprotected reinforcing. Loss of uplift anchorage on roof decks will also be important if significant deterioration has taken place, in the event that dead loads are otherwise inadequate for that purpose.

STEEL FRAMING SYSTEM

Corrosion, obviously enough, will be the determining factor in the deterioration of structural steel. Most likely suspect areas will be fasteners, welds, and the interface area where bearings are embedded in masonry. Column bases may often be suspect in areas where flooding has been experienced, especially if salt water has been involved.

Thin cracks usually indicate only minor corrosion, requiring minor patching. Extensive spalling may indicate a much more serious condition requiring further investigation.

Of most probable importance will be the vertical and horizontal cracks where masonry units abut tie columns, or other frame elements such as floor slabs. Of interest here is the observation that although the raw materials of which these masonry materials are made may have much the same mechanical properties as the reinforced concrete framing, their actual behavior in the structure, however, is likely to differ with respect to volume change resulting from moisture content, and variations in ambient thermal conditions.

Moisture vapor penetration, sometimes abetted by salt laden aggregate and corroding rebars, will usually be the most common cause of deterioration. Tie columns are rarely structurally sensitive, and a fair amount of deterioration may be tolerated before structural impairment becomes important. Usually, if rebar loss is such that the remaining steel area is still about 0.0075 of the concrete area, structural repair will not be necessary. Cosmetic type repair involving cleaning, and patching to effectively seal the member, may often suffice. A similar approach may not be unreasonable for tie beams, provided they are not also serving as lintels. In that event, a rudimentary analysis of load capability using the remaining actual rebar area, may be required.

FLOOR AND ROOF SYSTEMS

Cast in place reinforced concrete slabs and/or beams and joists may often show problem due to corroding rebars resulting from cracks or merely inadequate protecting

cover of concrete. Patching procedures will usually suffice where such damage has not been extensive. Where corrosion and spalling has been extensive in structurally critical areas, competent analysis with respect to remaining structural capacity, relative to actual supported loads, will be necessary. Type and extent of repair will be dependent upon the results of such investigation.

Precast members may present similar deterioration conditions. End support conditions may be important. Adequacy of bearing, indications of end shear problems, and restraint conditions are important, and should be evaluated in at least a few typical locations.

CONCRETE FRAMING SYSTEMS

Concrete deterioration will, in most cases be similarly related to rebar corrosion, possibly abetted by the presence of salt-water aggregate or excessively permeable concrete. In this respect, honeycomb areas may contribute adversely to the rate of deterioration. Columns are frequently most suspect. Extensive honeycomb is most prevalent at the base of columns, where fresh concrete was permitted to segregate, dropping into form boxes. This type of problem has been known to be compounded in areas where flooding has occurred, especially involving salt water.

In spalled areas, chipping away a few small loose samples of concrete may be very revealing. Especially, since loose material will have to be removed even for cosmetic type repairs, anyway. Fairly reliable quantitative conclusions may be drawn with respect to the quality of the concrete. Even though our cement and local aggregate are essentially derived from the same sources, cement will have a characteristically dark grayish brown color in contrast to the almost white aggregate. A typically white, almost alabaster like coloration will usually indicate reasonably good overall strength. The original gradation of aggregate can be seen through a magnifying glass. Depending upon the structural importance of the specific location, this type of examination may obviate the need for further testing if a value of 2000 psi to 2500 psi is sufficient for required strength, in the event that visual inspection indicates good quality for the factors mentioned.

WINDOWS

Window condition is of considerable importance with respect to two considerations. Continued leakage may have resulted in other adjacent damage and deteriorating anchorage may result in loss of the entire unit in the event of severe wind storms short of hurricane velocity. Perimeter sealant, glazing, seals, and latches should be examined with a view toward deterioration of materials and anchorage of units for inward as well as outward (section) pressures, most importantly in high buildings.

WOOD FRAMING

Older wood framed structures, especially of the industrial type, are of concern in that long term deflections may have opened important joints, even in the absence of deterioration. Corrosion of ferrous fasteners will in most cases be obvious enough. Dry rot must be considered suspect in all sealed areas where ventilation has been inhibited, and at bearings and at fasteners. Here too, penetration with a pointed tool greater than about one eighth inch with moderate hand pressure, will indicate the possibility of further difficulty.

LOADING

It is of importance to note that even in the absence of any observable deterioration, loading conditions must be viewed with caution. Recognizing that there will generally be no need to verify the original design, since it will have already been "time tested", this premise has validity only if loading patterns and conditions remain unchanged. Any material change in type and/or magnitude of loading in older buildings should be viewed as sufficient jurisdiction to examine load carrying capability of the affected structural system.

Load limit signs must be posted in all commercial buildings other than those with concrete slabs on fill.

SCOPE OF ELECTRICAL INSPECTION

The purpose of the required inspection and report is to confirm with reasonable fashion that the building or structure under consideration is safe for continued use under present occupancy. As mentioned before, it is a recommendation procedure, and under no circumstances are these minimum recommendations intended to supplant proper professional judgment.

ELECTRIC SERVICE

A description of the type of service supplying the building or structure must be provided, stating the size of amperage, if three (3) phase or single (1) phase, and if the system is protected by fuses or breakers. Proper grounding of the service should also be in good standing. The meter and electric rooms should have sufficient clearance for equipment and for the serviceman to perform both work and inspections. Gutters and electrical panels should all be in good condition throughout the entire building or structure.

BRANCH CIRCUITS

Branch circuits in the building must all be identified and an evaluation of the conductors must be performed. There should also exist proper grounding for equipment used in the building, such as an emergency generator, or elevator motor.

CONDUIT RACEWAYS

All types of wiring methods present in the building must be detailed and individually inspected. The evaluation of each type of conduit and cable, if applicable, must be done individually. The conduits in the building should be free from erosion, and checked for considerable dents in the conduits that may be prone to cause a short. The conductors and cables in these conduits should be chafe free, and their currents not over the rated amount.

EMERGENCY LIGHTING

Exit signs lighting and emergency lighting, along with a functional fire alarm system must all be in good working condition.

SECTION 3. MINIMUM INSPECTION PROCEDURAL GUIDELINES FOR BUILDING RECERTIFICATION, STRUCTURAL AND ELECTRICAL

MINIMUM INSPECTION PROCEDURAL GUIDELINES FOR BUILDING STRUCTURAL RECERTIFICATION

**Jeri is in the process of redoing the form for the
application/guidelines and will insert when completed
and then have it reviewed as an entire ordinance.**

SECTION 4. CODIFICATION

It is the intention of the Mayor and City Commission of the City of Miami Beach, and it is hereby ordained that the provisions of this ordinance shall become and be made part of the Code of the City of Miami Beach, Florida. The sections of this ordinance may be renumbered or relettered to accomplish such intention, and the word "ordinance" may be changed to "section", "article", or other appropriate word.

SECTION 5. REPEALER

All ordinances or part of ordinances in conflict herewith be the same are hereby repealed.

SECTION 6. SEVERABILITY

If any section, sentence, clause or phrase of this ordinance is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way affect the validity or the remaining portions of this ordinance.

SECTION 7. EFFECTIVE DATE

This Ordinance shall take effect thirty days following adoption.